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MC GINTY, D
EXAMINER

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ART UNIT
1105

46

PAPER NUMBER
03/29/95

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on _____ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
2. Notice of Draftsman's Patent Drawing Review, PTO-948.
3. Notice of Art Cited by Applicant, PTO-1449.
4. Notice of Informal Patent Application, PTO-152.
5. Information on How to Effect Drawing Changes, PTO-1474.
6. _____

Part II SUMMARY OF ACTION

1. Claims 24-26, 86-90, 896-108 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims 1-23, 27-85, 891-95 have been cancelled.

3. Claims _____ are allowed.

4. Claims 24-26, 86-90, 896-108 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. 08/105,332; filed on 5-22-87.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1835 C.D. 11; 453 O.G. 213.

14. Other

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Part III DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

2. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. § 119. The certified copy has been filed in parent application, Serial No. 08/053,307, filed on April 23, 1993 as paper no. 28.

3. However, a review of that certified copy, which is in English, indicates that it does not support the present assertion of priority. Support is not found in that certified copy for the invention as presently claimed. See MPEP 201.13 et seq. and 201.14 et seq.

Claim Rejections - 35 USC § 112

4. The specification is objected to under 35 U.S.C. § 112, *first paragraph*, as the specification, as originally filed, does not support the invention as is now claimed.

a. The language of claim 103 is not supported by the original specification.

b. Claims 103-108 are rejected under 35 U.S.C. § 112, *first paragraph*, for the reasons set forth in the objection to the specification.

5. The specification is objected to under 35 U.S.C. § 112, *first paragraph*, as failing to provide an enabling disclosure commensurate with the scope of the claims.

a. The present specification is only enabled for compositions comprising $Ba_xLa_{5-x}Cu_5O_y$. The art of high temperature (above 30°K) superconductors is an extremely unpredictable one. Small changes in composition can result in dramatic changes in or loss of superconducting properties. The amount and type of examples necessary to support broad claims increases as the predictability of the art decreases. See In re Fisher, 166 USPQ 18, 24; and In re Angstadt and Griffen, 190 USPQ 214, 218.

See also, In re Colianni, 195 USPQ 150, 153, 154 (CCPA 1977) (J. Rich). Claims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 USC 112. See In re Cook, 169 USPQ 298, 302; and Cosden Oil v. American Hoechst, 214 USPQ 244, 262,. Merely reciting a desired result does not overcome this failure. See In re Corkill, 226 USPQ 105, 1009. In particular, the question arises: Will any layered perovskite material containing copper exhibit superconductivity? Also, does any stoichiometric combination of rare earth, an alkaline earth, and copper elements result in an oxide superconductor?

b. It should be noted that at the time the invention was made, the theoretical mechanism of superconductivity in these materials was not well understood. That mechanism still is not understood. Accordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated to exhibit high temperature superconductivity. A "patent is not a hunting license. It is not a reward for the search, but a reward for its successful conclusion", Brenner v. Manson, 383 US 519, 148 USPQ 689.

c. Claims 24-26, 86-90, and 96-108 are rejected under 35 U.S.C. § 112, *first paragraph*, for the reasons set forth in the objection to the specification.

6. Claims 86-87 and 96-108 are rejected under 35 U.S.C. § 112, *second paragraph*, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The terms "layer-type", "perovskite-like", "rare-earth-like" are vague and confusing. The question arises: What is meant by these terms?

b. Claims 101 and 107 recite "at least one element in a nonstoichiometric atomic proportion". The question arises: How can any element be of nonstoichiometric atomic proportion?

c. The language of claim 103 is confusing. The question arises: What is meant by the term "the composition having a superconductive/resistive transition defining a superconductive/resistive-transition temperature range"?

Claim Rejections - 35 USC § 102

7. **Claims 24-26, 86-90, and 96-108 are rejected under 35 U.S.C. § 102(a) as being anticipated by Asahi Shinbum, International Satellite Edition (London), November 11, 1986 (hereinafter, "the Asahi Shinbum article").**

a. As discussed in paper no. 20 of the ancestral application, 07/053,307, it is not fully clear to what exact date applicants are entitled. Based on the record, nonetheless, that date would appear to be no later than around December 13, 1986, the date samples were tested in the **US** to show superconductivity. See MPEP 715 et seq. The Asahi Shinbum article was published on November 28, 1986.

b. The reference confirms superconductivity in an oxide compound of La and Cu with Ba having a structure of the so-called perovskite structure. Although the reference fails to teach use of the testing of zero resistance for confirming superconductivity, it inherently must have been used because it is one of two methods used for testing for superconductivity (the other being diamagnetism). Accordingly, the burden of proof is upon the applicants to show that the instantly claimed subject matter is different from and unobvious over that taught by this reference. See In re Brown, 173 USPQ 685, 688; In re Best, 195 USPQ 430; and In re Marosi, 218 USPQ 289, 293.

Claim Rejections - 35 USC § 103

8. Claims 24-26, 86-90, and 96-108 are rejected under 35 U.S.C. § 103 as being unpatentable over the Asahi Shinbum article.

a. The reference is relied upon as set forth in the previous rejection. This reference may differ from the present claims in that it may fail to disclose the presently claimed method of "causing an electric current to flow in the superconductor element". It was notoriously well-known in the art of superconductors that a method of utilizing superconductive materials was to cause an electric current to flow in the material while it is cooled below its transition temperature. See MPEP 706.02(a). Accordingly, it would have been well within the purview of one of ordinary skill to use the present claimed method with the materials disclosed by the reference. One would have been motivated to cool the material of the reference to below the transition temperature and cause electric current to flow in the material to provide electricity without resistance. Accordingly, the present claims are unpatentable in view of the prior art of record.

Possibly Allowable Subject Matter

9. It is noted that the applicants were awarded the Nobel Prize for their work in this area. The record is not deemed to indicate, however, that the Asahi Shinbum article was predicated by the applicants' earlier conception and/or reduction to practice *in this country*. The presently claimed invention also is non-enabling and indefinite for the reasons set forth above.

10. To possibly overcome the above rejections, the following amendments are suggested:

a. 109 (New). A method comprising the steps of: forming a composition of the formula $Ba_xLa_{5-x}Cu_5O_y$, wherein x is from about 0.75 to about 1 and y is the oxygen deficiency resulting from annealing said composition at temperatures from about 540°C to about 950°C and for times of about 15 minutes to about 12 hours, said composition having a metal oxide phase which exhibits a superconducting state at a critical temperature in excess of 26°K;

maintaining the temperature of said composition at a temperature less than said critical temperature to induce said superconducting state in said metal oxide phase; and

passing an electrical supercurrent through said composition while said metal oxide phase is in said superconducting state.

b. Cancel claims 24-26, 86-90, and 96-108.

11. The following is an Examiner's statement of reasons for the indication of possibly allowable subject matter:

a. The Asahi Shinbum article teaches in general that perovskite-like compounds of La, Cu, and Ba have a T_c of 30°K, but that article apparently does not teach the particular formula in the amendment suggested above. The examples in the present specification are deemed to show criticality for that formula in that suggested amendment.

b. Support for the proposed amendment is found at p. 20, line 1, through p. 25, line 5, and in Figure 3.

12. This indication of possibly allowable subject matter is subject to further consideration and review.

Conclusion

13. This is a file wrapper continuation of applicant's earlier application S.N. 08/060,470. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds or art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though

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it is a first action in this case. See M.P.E.P. § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

14. Any amendment in response to this Office Action must NOT include any new matter. See MPEP 608.04 and 706.03(o).

15. All of the references cited in this application indicate the level of skill in the relevant art at the time the invention was made.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas J. McGinty, whose telephone number is (703) 308-3805. The examiner normally can be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M., Eastern time. If reasonable attempts to reach the examiner by telephone are unsuccessful, however, the examiner's supervisor, Mr. Paul Lieberman, can be reached at (703) 308-2523. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

17. The fax number for this Group is (703) 305-3599.

Dr
Douglas J. McGinty
March 28, 1995
303561.1

Paul Lieberman
PAUL LIEBERMAN
SUPERVISORY PRIMARY EXAMINER
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